

**RE-VERBER-RAY HEATER  
SUBMITTAL SHEET****REV SERIES PREMIER PLUS TUBE HEATERS****TWO STAGE, LOW INTENSITY, GAS-FIRED INFRARED TUBE HEATER WRITTEN SPECIFICATIONS**

## TUBULAR INFRARED HEATERS

- A. Basis-of-Design Product: Subject to compliance with requirements, provide Detroit Radiant Products Company; Re-Verber-Ray two stage REV Series.
- B. Fuel Type: Burner shall be designed for [natural][propane] gas having characteristics same as those of gas available at project site.
- C. Gas Control: Operation shall include a defined input differential. Heater must be CSA Design Certified to operate at an input differential of at least 30% between the low and nominal rated input modes.
- D. Combustion Chamber: Shall be 4-inch O.D., 16 ga. titanium-stabilized aluminized steel (150–200 MBH) or aluminized steel (below 150 MBH), finished with a corrosion-resistant, black coating with an emissivity level documented at 0.92 or higher.
- E. Radiant Emitter Tube: Shall be 4-inch O.D., 16 ga. aluminized steel finished with a corrosion-resistant, black coating with an emissivity level documented at 0.92 or higher. Calorized or hot rolled steel tubes shall not be permitted.
- F. Burner Type: Unit shall be a positive pressure (push) burner with a combustion fan upstream of the burner and exhaust gases for component longevity, maximum combustion efficiency, and energy transfer. Negative pressure (pull) appliances shall not be permitted.
- G. Combustion Air: Unit shall incorporate a connection between the burner box and reflector to supply pre-heated combustion air.
- H. Fan Enclosure: Combustion fan shall be totally housed inside burner control box and not exposed. Appliances with exposed combustion/exhauster fans shall not be permitted.
- I. Premium Combustion Burner: Shall be constructed from 304-grade stainless steel and die formed in a venturi-style design. Flame arrestor shall be a minimum of ¼" thick constructed from sintered steel or perforated stainless steel. Burner design shall also include secondary air vanes to maximize flame rotation and heat distribution. Non-venturi or ceramic style flame arrestor designs shall not be permitted.
- J. Radiant Emitter Tube: Shall be 4-inch O.D., 16 ga. aluminized steel finished with a corrosion-resistant, black coating with an emissivity level documented at 0.92 or higher. Calorized or hot rolled steel tubes shall not be permitted.
- K. Tube Connections: The heater's combustion chamber and radiant emitter tube shall connect via a 4-inch slip-fit, interlocking connection in which the upstream tube slides into the next tube and is held by a 4-inch aluminized bolted clamp. 4-inch 304-grade stainless steel clamps shall be used to join combustion tubes to radiant tubes on systems 150 MBH and above. A non-swaged or butted tube connection system shall not be permitted.
- L. Hangers: Hangers shall be a floating design which allows for tube movement independent of reflectors.
- M. Control Box: Heater's exterior control chassis shall be constructed of corrosion-resistant enameled steel. The heater's top cover shall be constructed of ABS plastic material with hinged and fitted design properties and shall be accessible without the use of tools.
- N. Sight Glass: Heater shall be equipped with a sight glass allowing a visual inspection of igniter and burner operation from floor level.
- O. Air Intake: An air intake collar shall be supplied as part of the burner control assembly fitted to accept a 4-inch O.D. PVW or DWV air supply duct.
- P. Baffle: Heater shall utilize downstream turbulator baffle(s) for maximum heat transfer.
- Q. Flexible Connector: Heater shall be supplied with a stainless steel flexible gas connector.
- R. Ignition System: Hot surface ignition with silicon carbide glo-bar. Direct spark ignition systems shall not be permitted. The heater's ignition and control compartment shall be accessible without the use of tools and serviceable while the heater is operating.
- S. Burner Safety Controls:
  - 1. Heater controls shall include a single differential pressure switch to monitor combustion air flow so as to provide complete burner shutdown due to insufficient combustion air or flue blockage.
  - 2. Staged operation shall be mechanical in nature and controlled via a direct 24 V connection directly to the valve assembly. Heaters that control staging via air pressure or air ducting shall not be permitted.
  - 3. The heater shall incorporate a self-diagnostic ignition module and feature an ignition system with three (3) tries prior to entering soft lockout followed by hard lockout.
  - 4. Burner assembly shall not require nor incorporate the use of air filters.
  - 5. Heater control assembly shall include three (3) operational indicator lights indicating status of low fire operation, high fire operation, and pressure switch operation.
  - 6. The heater's ignitor warm-up control system shall provide a 45-second pre-purge prior to initiating burner operation and a 90-second post-purge upon completion, effectively removing all combustion by-products from the heat exchangers.

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LSREVsF-04/22 (DRPC)

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## REV SERIES PREMIER PLUS TUBE HEATERS

### TWO STAGE, LOW INTENSITY, GAS-FIRED INFRARED TUBE HEATER WRITTEN SPECIFICATIONS

7. No condensation shall form as a result of combustion in the combustion chamber or radiant tubes while at operating temperatures.
  8. Thermostat control shall be two stage operating on 24 VAC.
- T. Venting: Shall be per manufacturer approval and specifications.

#### EXTRUDED ALUMINUM RAIL & REFLECTOR CONSTRUCTION

- A. Material: Reflector shall be solid extruded aluminum with a minimum core wall thickness of 0.070-in. (15-gauge). Rolled or pressed reflectors shall not be permitted.
- B. Design Configurations: Reflector shall feature at least four (4) field configurable designs with a minimum option of:
  - i. A standard "dual pass" (88% design effective) geometric profile, designed to increase tube temperatures and maximize radiant output.
  - ii. A wide-angle "single pass" (100% design effective) geometric profile, designed to lessen tube temperature and maximize radiant flux patterns.
- C. Mounting Rail: Reflector shall feature an integrated sliding track rail with fitted brackets to allow selectable hanging locations. Heaters requiring a predefined mounting location shall not be permitted.
- D. Energy Capturing Cavities: Reflector shall feature integral, insulating energy cavities designed to capture heat energy to pre-heated combustion air to the burner while concurrently reducing the heater's top clearances to combustibles to a distance as low as 2 inches. Single or dual wall reflectors shall not be permitted.
- E. Reflector Facets: Reflector shall incorporate a minimum of eighteen (18) "reverberatory" facets to best optimize the radiant flux pattern AFF.
- F. Side Shield Mount: Reflector may be mounted with a 35° forward throw side shield using only the supplied materials. No additional accessories shall be required to achieve this profile.
- G. Sway Bracing: Reflector shall be supplied with sway bracing brackets for use in high wind or vibration applications. Sway brackets shall be secured with a factory installed nutsert anchor design.
- H. Energy Optimizer: Reflector shall be capable of being fitted with an optional field mount heat extraction or recapture device. Device shall be designed to release the heat captured in the Energy Capturing Chambers as usable convective air.



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